On page 31, Table "BOND C, Specimen #1C", second column, second entry, please add --(0.22)--, the metric unit equivalent in Kg to 0.48 lbs.

On page 31, Table "BOND C, Specimen #1C", second column, third entry, please add --(1.81)--, the metric unit equivalent in Kg to 4.00 lbs.

On page 32, Table "BOND C, Specimen #2C", in the column heading, second column, please substitute --lbs-- for "(lbs)", and add --(Kg)-- after "lbs".

On page 32, Table "BOND C, Specimen #2C", second column, first entry, please add --(13.60)--, the metric unit equivalent in Kg to 30.08 lbs.

On page 32, Table "BOND C, Specimen #2C", second column, second entry, please add --(0.24)--, the metric unit equivalent in Kg to 0.52 lbs.

On page 32, Table "BOND C, Specimen #2C", second column, third entry, please add --(2.00)--, the metric unit equivalent in Kg to 4.40 lbs.

On page 32, Table "BOND C, Specimen #3C", in the column heading, second column, please substitute --lbs-- for "(lbs)", and add --(Kg)-- after "lbs".

On page 32, Table "BOND C, Specimen #3C", second column, first entry, please add --(13.42)--, the metric unit equivalent in Kg to 29.60 lbs.

On page 32, Table "BOND C, Specimen #3C", second column, second entry, please add --(0.26)--, the metric unit equivalent in Kg to 0.57 lbs.

On page 32, Table "BOND C, Specimen #3C", second column, third entry, please add --(2.19)--, the metric unit equivalent in Kg to 4.83 lbs.

On page 35, Table "BOND A, Specimen #7A", in the column heading, second column, please substitute --lbs-- for "(lbs)", and add --(Kg)-- after "lbs".

On page 35, Table "BOND A, Specimen #7A", second column, first three entries, each occurrence, please delete "(g)".

On page 35, Table "BOND A, Specimen #7A", second column, first entry, please add --(35.65)--, the metric unit equivalent in Kg to 78.61 lbs.

On page 35, Table "BOND A, Specimen #7A", second column, second entry, please add --(0.46)--, the metric unit equivalent in Kg to 1.01 lbs.

On page 35, Table "BOND A, Specimen #7A", second column, first entry, please add --(1.83)--, the metric unit equivalent in Kg to 4.04 lbs.

On page 36, Table "BOND C, Specimen #4C", in the column heading, second column, please substitute --lbs-- for "(lbs)", and add --(Kg)-- after "lbs".

On page 36, Table "BOND C, Specimen #4C", second column, first three entries, each occurrence, please delete "(g)".

On page 36, Table "BOND C, Specimen #4C", second column, first entry, please add --(17.01)--, the metric unit equivalent in Kg to 37.51 lbs.

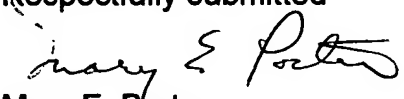
On page 36, Table "BOND C, Specimen #4C", second column, second entry, please add --(0.14)--, the metric unit equivalent in Kg to 0.31 lbs.

On page 36, Table "BOND C, Specimen #4C", second column, first entry, please add --(0.99)--, the metric unit equivalent in Kg to 2.18 lbs.

CONCLUSIONS

Applicants respectfully request entry of these amendments to correct typographical errors in the originally filed specification.

Respectfully submitted



Mary E. Porter
Attorney for Applicants
Registration No. 33,440
Phone Number 508-795-2555

December 16, 2002
Saint-Gobain Abrasives, Inc.
1 New Bond Street
Box Number 15138
Worcester, Massachusetts 01615-0138
#37366.01

APPENDIX A

Table 4B

Effect of Duration of Humidity Control During Bake Cycle on Wet Flexural Strength at Constant Relative Humidity (Maximum Obtainable at a given Temperature*)

Run # Sample	Conditions Time (hrs)	Conditions Temp °C	% Cycle	Dry Strength (MPa)	Wet Strength (MPa)	% Strength Retained
1	5	135	33	33.2	11.3	34
2	5.6	140	100	28.6	17.5	61
3	6	120	35	27.6	13.8	50
4	7.5	135	40	29.5	17	58
5	7.5	160	50	32.2	18.6	58
6	11	160	75	31.9	19.8	62
7	14	160	93	13.3	9.2	69
8	15	160	100	29.7	22.3	75
9	23	160	100	29.3	21.2	72
Control		160		32.9	11.6	35

*Humidity profile varied with temperature. Maximum R.H. obtainable at a given temperature in these ovens can be found in the Oven Temperature/Humidity Profile Table.

Table 4C

Effect of Percent Relative Humidity on Wet Flexural Strength (Maximum Obtainable at a given Temperature*) using Humidity Control for Entire Bake Cycle

Run # Sample	Conditions Time	Conditions Temp	% Cycle	Setpoint* Humidity	Dry Strength (MPa)	Wet Strength (MPa)	% Strength Retained
1	15 h	160	100	30	28.3	7.5	27
2	15 h	160	100	40	32.1	11.5	36
3	15 h	160	100	50	29	12.6	43
4	15 h	160	100	60	31.5	18.6	59
5	15 h	160	100	75	28.6	20.2	71
6	15 h	160	100	90	29.7	22.3	75
7	15 h	170	100	90	20.9	14.2	68
Control		160			32.9	11.6	35

* Humidity profile varies with temperature. Maximum R.H. obtainable at a given temperature in these ovens can be found in the Oven Temperature/Humidity Profile Table.

The results indicated that relative humidity and duration of exposure to humidity, when increased, resulted in improved properties. Optimum conditions were at the highest humidity obtainable in the oven for a given temperature, for the duration of the cure cycle. Wet flexural strength measurements for samples cured under optimized conditions were greater than twice the wet strength of the control sample.

Example 5

Standard wheels were molded to 5.125" (130.175 mm) x 0.40" (10.16 mm) x 1.0" (25.4 mm) for a finished size of 5.0" (127.00 mm) x 0.200" (5.08 mm) x 1.25 (31.75 mm). The wheels were fabricated employing the grain, silane, resole and dry bond A described in

The bond system employed for this test is shown below:

BOND C

COMPONENT	WEIGHT %
Rubber modified resin used in BOND A	42.73
Fluorspar (Calcium Fluoride)	33.17
Bubbled Mullite	24.10

Three different wheel specifications in various grades (H, J, L), all including this dry bond, were formed and they are described below.

BOND C, Specimen #1C

COMPONENT	WEIGHT lbs (Kg)
Silane-pretreated 38A alundum abrasive, 60 grit (406 micron)	30.52 (13.8)
LPR	0.48 (0.22)
BOND C	4.00 (1.81)
Properties	**Values**
wheel density	2.0836 g/cm^3
wheel grade & structure	H-9
Composition	**Volume %**
Abrasive	46
Bond	20.1
Porosity	33.9

BOND C, Specimen #2C

COMPONENT	WEIGHT lbs (Kg)
Silane-pretreated 38A alundum abrasive, 60 grit (406 micron)	30.08 (13.60)
LPR	0.52 (0.24)
BOND C	4.40 (2.00)
Properties	**Values**
wheel density	2.1141 g/cc
wheel grade & structure	J-9
Composition	**Volume %**
Abrasive	46
Bond	22.4
Porosity	31.6

EXAMPLE 5C, BOND C, Specimen #3C

COMPONENT	WEIGHT lbs (Kg)
Silane-pretreated 38A alundum abrasive, 60 grit (406 micron)	29.60 (13.42)
LPR	0.57 (0.26)
BOND C	4.83 (2.19)
Properties	**Values**
wheel density	2.1486 g/cc
wheel grade & structure	L-9
Composition	**Volume %**
Abrasive	46
Bond	25.0
Porosity	29.0

above indicated that G-Ratio retention of 100% can be achieved using phenolic-bonded abrasive products processed according to the invention. Resultant wheel life increases of 40% are expected from these products, based on G-Ratio retention values.

Example 8

Wheels produced by the method of the invention were subjected to burst testing. The specifications used are shown below.

BOND A, Specimen #7A

COMPONENT	**WEIGHT lbs (kg)**
Silane-pretreated 38A alundum abrasive, 24 grit (1035 micron)	78.61 (35.65)
LPR	1.01 (0.46)
BOND A	4.04 (1.83)
Properties	**Values**
wheel density	2.186 g/cm^3
wheel grade & structure	D-6
Composition	**Volume %**
Abrasive	52
Bond	10.3
Porosity	37.7

BOND C, Specimen #4C

COMPONENT	WEIGHT lbs	(kg)
Silane-pretreated 38A alundum abrasive, 24 grit (1035 micron)	37.51	(17.01)
LPR	0.31	(0.14)
BOND C	2.18	(0.99)
Properties	**Values**	
wheel density	2.191 g/cm^3	
wheel grade & structure	D-6	
Composition	**Volume %**	
Abrasive	50	
Bond	12.5	
Porosity	37.5	

Procedure for Qualification of Wheels using Wet Burst Strength Criteria

Burst test wheels (12" (304.79 mm) x 1" (25.4 mm) x 4" (101.60 mm)) were made in Bond C and in Bond A, described, respectively, in Examples 7 and 1. Soft grade and coarse grit was used to test the wet burst strength. These tests were performed using 38A abrasive, known for having poor wet strength, in both BOND C and in BOND A. The test specification for surface grinding applications was BOND A, Specimen #7A and, for disc grinding applications, BOND C, Specimen #4C. The standard products were prepared by conventional wrapping described above. Minimum qualification speeds and wet burst data are shown in Table 8.

A 35% increase in wet burst speed was observed in the experimental product over the standard product for the surface grinding specification. A 9% increase in wet burst speed in disc grinding was observed in the wheel thermally cured in an atmosphere comprising humidity over the standard wheel.